What is claimed is:

Claims

1. A method of inhibiting rejection of a transplanted tissue in a mammal, said method comprising the steps of

a) introducing into a cell, either in vivo or ex vivo, DNA encoding an immunosuppressive polypeptide, and

b) if step (a) was carried out ex vivo, transplanting said cell into said mammal

wherein expression of said polypeptide is regulated by DNA which does not naturally regulate said expression, so that said polypeptide is expressed close enough to said transplanted tissue to inhibit rejection.

2. A method of inhibiting rejection of a transplanted tissue in a mammal, said method comprising the steps of

a) introducing into a cell, either in vivo or ex vivo, DNA encoding a glycosidase, and

b) if step (a) was carried out ex vivo, transplanting said cell into said mammal

wherein expression of said glycosidase is regulated by DNA which does not naturally regulate said expression, so that said polypeptide is expressed close enough to said transplanted tissue to inhibit rejection.

3. The method of claim 1 or claim 2 wherein said cell is a cell of an allograft.

4. The method of claim 1 or claim 2 wherein said cell is a cell of a xenograft.

5. A method of inhibiting a destructive autoimmune response in a mammal, said method comprising the steps of

a) introducing into a cell, either in vivo or ex vivo, DNA encoding an immunosuppressive polypeptide, and

b) if step (a) was carried out ex vivo, transplanting said cell into said mammal

wherein expression of said polypeptide is regulated by DNA which does not naturally regulate said expression, so that said polypeptide is expressed close enough to the site of said destructive autoimmune response to inhibit destruction.

6. The method of claim 5 wherein said mammal is a mammal with rheumatoid arthritis.

7. The method of claim 5 wherein said mammal has diabetes caused by an autoimmune response.

8. The mammal of claim 7, wherein said mammal is presymptomatic.

9. The method of claim 5 wherein said mammal is a mammal with systemic lupus erythematosus.

10. The method of claim 5 wherein said mammal is a mammal with multiple sclerosis.

11. The method of claim 1, 2 or claim 5 wherein said DNA encodes IL-10.

12. The method of claim 1, 2 or 5 wherein said DNA encodes TGF-ß.

13. The method of claim 1, 2 or claim 5 wherein said DNA encodes cyclosporine synthetase and said method further comprises administering to said mammal a therapeutically effective amount of a cyclosporine precursor.

14. The method of claim 1, 2 or claim 5 wherein expression of said polypeptide is constitutive.

15. The method of claim 1, 2 or claim 5 wherein expression of said polypeptide is inducible by a compound that stimulates an immune response.

16. The method of claim 1 or claim 5, said DNA further comprising nucleic acids encoding an indicible polypeptide which activates expression of said DNA encoding said immunosuppressive protein, said inducible polypeptide activating said expression in the presence of a non-toxic compound.

17. The method of claim 1, 2 or 5 wherein expression of said polypeptide is inducible by a compound which is tissue specific.

18. The method of claim 1, 2 or claim 5, said DNA comprising regulatory elements including a synthetic regulatory DNA sequence from at least one of NF-KB, NF-IL-6, IL-6, LRE, AP-1, p91/stat, or the IL-6 response elements.

19. The method of claim 1, 2 or claim 5 wherein said introducing of said DNA is *in vivo*.

20. The method of claim 1, 2 or claim 5 wherein said introducing of said DNA is *in vitro*.

21. The method of claim 1, 2 or 5 wherein said cell is a cell of the heart.

22. The method of claim 1, 2 or 5 wherein said cell is a cell of the liver.

23. The method of claim 1, 2 or 5 wherein said cell is a cell of the kidney.

24. The method of claim 1, 2 or 5 wherein said cell is a cell of the neuronal tissue.

25. The method of claim 1, 2 or 5 wherein said cell is a cell of the lung.

26. The method of claim 1, 2 or 5 wherein said cell is a cell of the pancreas.

27. The method of claim 24 wherein said cell is a cell of the central nervous system.

28. The method of claim 1, 2 or 5 wherein said cell is a cell of said mammal.

29. The method of claim 1, 2 or 5 wherein said cell is a myoblast.

30. The method of claim 1, 2 or 5 wherein said cell is a renal tubular epithelial cell.

31. The method of claim 1, 2 or 5 wherein said mammal is a human.

32. A substantially pure protein characterized in that

it is secreted by cloned anergic T-cells,

it blocks IL-2 stimulated T-cell proliferation,

it has an apparent molecular weight of between 10 and 30 kilodaltons,

it can be inactivated by heating to 65°C for 15 minutes,

it blocks IL-4 stimulated T-cell proliferation *in vitro*,

it is non-cytotoxic to T-cells, and

it does not inhibit the production of IL-2 by T-cells *in vitro*.

33. A purified nucleic acid encoding the protein of claim 32.

34. A method of altering the effect of IL-2 on an IL-2 receptor-bearing cell in a mammal, said method comprising

bringing into close proximity with said cell a second cell of said mammal which is transfected with the nucleic acid of claim 33 so that said second cell secretes said protein.

35. The method of claim 34, wherein said second cell is a T-cell.

36. The method of claim 34, wherein said second cell is an endothelial cell lining a blood vessel.

37. The method of claim 34, wherein said second cell is an epithelial cell.

38. The method of claim 37, wherein said epithelial cell is of the proximal tubule of the kidney.

39. The method of claim 38, wherein said epithelial cell is a gut epithelial cell.

40. The method of claim 34, wherein said mammal is a human.

41. A method of altering the effect of IL-2 on an IL-2 receptor-bearing cell in a mammal, comprising,

transfecting said cell with the nucleic acid of claim 33 so that said cell secretes said protein.

42. A method of altering the effect of IL-4 on an IL-4 receptor-bearing cell in a mammal, said method comprising

bringing into close proximity with said cell a second cell of said mammal which is transfected with the nucleic acid of claim 33 so that said second cell secretes said protein.

43. The method of claim 42, wherein said second cell is a T-cell.

44. The method of claim 42, wherein said second cell is an endothelial cell lining a blood vessel.

45. The method of claim 42, wherein said second cell is an epithelial cell.

46. The method of claim 45, wherein said epithelial cell is of the proximal tubule of the kidney.

47. The method of claim 45, wherein said epithelial cell is a gut epithelial cell.

48. The method of claim 42, wherein said mammal is a human.

49. A method of altering the effect of IL-4 on an IL-4 receptor-bearing cell in a mammal, said method comprising

transfecting said cell with the nucleic acid of claim 33 so that said cell expresses said protein.

50. A human T-cell clone characterized in that it

is anergic;

is dependent on recombinant human IL-2 for growth;

expresses cell surface CD8;

is non-cytolytic; and,

expresses Vß11 T cell receptor.